shovel test pits contained historic artifacts (one creamware, three pearlware, four whiteware, three redware, two cut nails and two bottle and four window glass fragments). Because of the even distribution and low counts of the historic artifacts, this assemblage probably represents a nineteenth century field scatter.

Area D was located on a rise in the northeast corner of the plowed field and in the woodlot to the east of the field. The woodlot contained two low areas with standing water. The area around these swamps was tested. A total of twenty four shovel test pits were excavated (Figure 40). No prehistoric artifacts were recovered in this area; however, six shovel test pits contained historic artifacts. Shovel Test Pits D1, D3, D4, D5, D6, and D9 contained 53 window glass fragments and two bottle glass fragments. Area E was located on a rise on the east side of the project area, north of the stream. A total of 22 shovel test pits were excavated in this area (Figure 40). No prehistoric artifacts were recovered. Four Shovel Test Pits (E10, E11, E13, and E19) contained historic artifacts. One bottle and two window glass fragments and one fragment of redware were recovered from this area.

The very low artifact counts for shovel test pits in the Kemeether Wetland Replacement Area indicate that there are no significant historical or prehistoric cultural resources within the proposed Kemeether Wetland Replacement Area. No further archaeological work is recommended in this area.

DISCUSSION AND CONCLUSIONS

Implications For Regional Prehistory

The results of the Phase I and II investigation of four prehistoric sites within the Route 273 realignment and proposed wetland replacement project areas provides opportunity to investigate a wide range of research issues, such as site location models, regional settlement patterns, and regional lithic technologies.

In general, the site locations noted in this study confirm the site location predictive models. The three sites located in the Ogletown Interchange project area (7NC-D-131 A, B, and C) were within a high probability zone (Figure 4). The sites were on well-drained ground along Cool Run, a tributary of White Clay Creek. The Birchwood Site (7NC-D-190) was classified as a low probability zone in the 1987 Ogletown survey (Coleman, Hoseth, and Custer 1987), but was classified as a high probability zone based on the more recent study by Kellogg (1993a). This site was bordered by two drainage ditches that flowed to the south into a modern development's sewer system. This area may have been a seasonally wet marsh that drained into a tributary stream of the Christina River, located one half mile to the south. The drainage pattern in this area has been altered by modern

agricultural activities and this alteration may have lead researchers in 1987 to believe that no reliable surface water was nearby.

Although the proposed Kemeether Wetland Replacement Area was located in a high and medium probability zone, no sites were located. The lack of sites associated with this poorly drained area suggests that not all of the poorly drained interior settings were utilized by prehistoric groups, and that flowing surface water settings were more commonly preferred to areas of poor drainage. Similar conclusions were reached based on the results from the Old Baltimore Pike survey (Catts, Hodny, and Custer 1989).

Like the Kemeether area, the proposed Route 141 Wetland Replacement Area was also located in a high probability zone, and no sites were located in the project area. The disturbance and channelization of the area during the construction of Interstate 295 probably had an adverse effect on the area. Thus, the Route 141 Wetland Replacement Area cannot be used to either confirm or refute the predictive model.

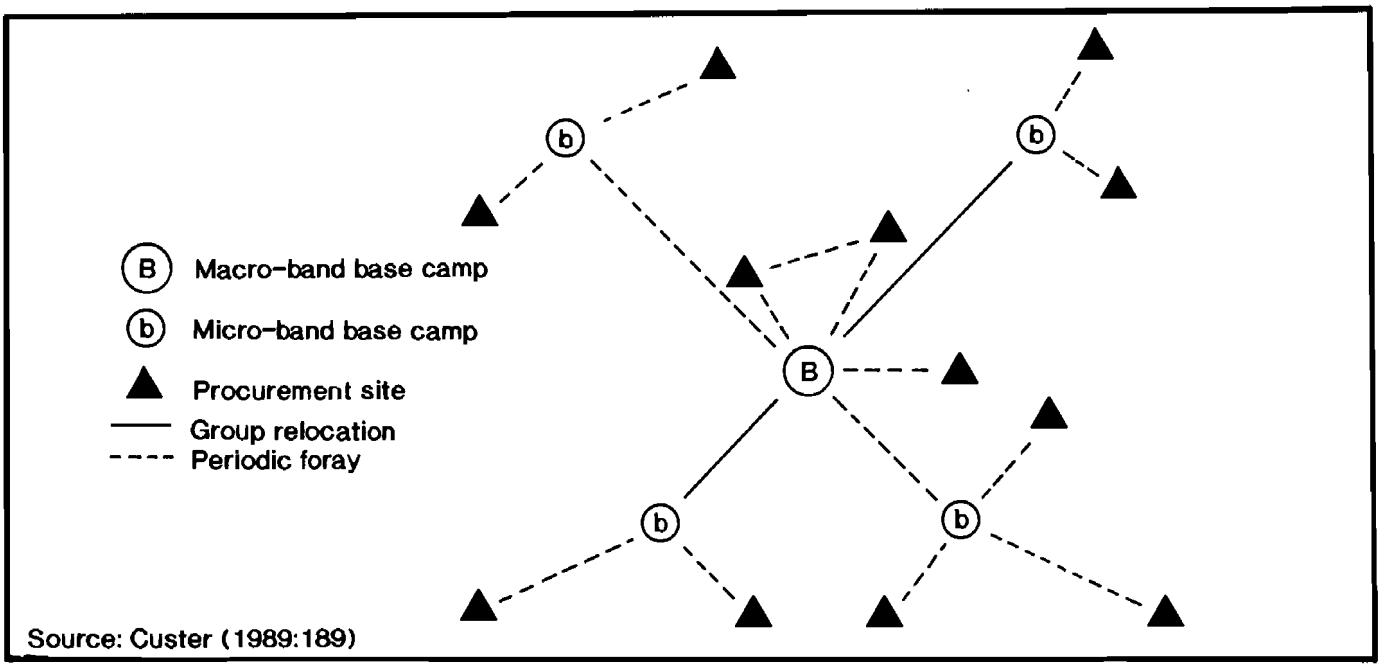
The Gabor Site Area B has been tentatively identified as a base camp from the Clyde Farm Complex of the Woodland I Period. The Delaware Park Site (Thomas 1981) has been the only large-scale, intensively excavated Woodland I base camp in northern New Castle County. Only a few base camp sites have had small sections intensively excavated (e.g., Clyde Farm Site - Custer, Watson, and De Santis 1987). Data recovered from the Gabor Site could be compared to other excavated Woodland I sites in the vicinity and also to other, more recently excavated base camps in the region (e.g., Snapp Site - Custer and Silber 1994; and Leipsic Site - Custer, Riley, and Mellin 1994).

Additional excavation of the Gabor Site Area B can help to confirm the hypothesis that this site does indeed represent a base camp and provide insight into the attributes that are characteristic of this site type. Further research at the Gabor Site could also yield data on the duration and possible seasonality of prehistoric settlement at the site along with information about local settlement patterns. The Dairy Queen Site (7NC-D-129), was a transient procurement camp located one kilometer from the Gabor Site (Custer et al. 1988). A staging/processing area, the Paradise Lane Site (7NC-D-125), was located only 600 m from the Gabor Site (Custer, Riley, Hoseth, and Coleman 1994). All three sites were occupied during the Woodland Period, and the Gabor Site may be the location where work groups of the Dairy Queen and Paradise Lane sites made their seasonal, semi-permanent home.

The location of the Gabor Site Area B confirms the interpretation of Woodland I interior procurement and base camp sites noted in the Management Plan for Delaware Prehistoric Cultural Resources (Custer 1986) and previous studies in Delaware (Riley et al. 1994; Bachman, Grettler and Custer 1988;

FIGURE 42

Woodland I Settlement System, Clyde Farm and Barker's Landing Complexes



and Grettler, Seidel, and Kraft 1994). An increase in size, and reduction in the variety of locations of macro-band base camps is recognized in the Clyde Farm and Barker's Landing complexes (Figure 42). Additionally, an increase in the number and variety of procurement locales has been observed (Custer 1984b). Micro-band base camps in these complexes would have been located in special resource settings, such as attractive hunting locales and lithic procurement locales. Proximity to reliable sources of surface water would also be a factor for base camp locations. Cool Run, a tributary of White Clay Creek, was located 160 m west of the Gabor Site Area B. The site is located in the Fall Line/High Coastal Plain transition zone, an area rich in cobble resources, and a short distance from Delaware Chalcedony Complex quarries at Iron Hill, as well as quartz outcrops of the Piedmont just north of the site area. A variety of lithic resources would have been easily assessable.

The lithic resource use at the Gabor Site Area B, as well as the two associated sites (Gabor Area A and Area C) and the nearby Birchwood Site can be compared to use patterns in the Fall Line, High Coastal Plain, and Piedmont regions. Percentage comparisons of cortex, cryptocrystalline use, and quartz/quartzite use among several sites within the region are presented in Table 6. Due to various artifact assemblage sizes, the difference-of-proportion test (Parsons 1974) was used to evaluate percentage differences. Table 7 lists the sites in rank order, from lowest to highest, by percentage frequencies of cortex, cryptocrystalline use, and quartz/quartzite use. Sites with no significant differences are joined by brackets.

TABLE 6

Comparative Lithic Resource Use

Site	Function	Total Artifacts	Cortex %	Cryptocrystalline %	Quartzite/ Quartz %	References
7NC-D-131A	**?**	**36**	**11**	**3**	**97**	**Coleman, Hoseth, and Custer 1987**
7NC-D-131B	**Base Camp**	**718**	**6**	**32**	**67**	**---**
7NC-D-131C	**?**	**76**	**15**	**3**	**93**	**---**
7NC-D-190	**Procurement?**	**111**	**10**	**17**	**79**	**---**
7NC-D-125 Area A	Staging/ Processing	10,576	1	98	2	Riley, Custer, Hoseth, and Coleman 1994
Area B	Staging/ Processing	1,931	2	92	8	Riley, Custer, Hoseth, and Coleman 1994
Area C	Staging/ Processing	1,096	13	54	45	Riley, Custer, Hoseth, and Coleman 1994
7NC-D-129	Procurement	2,207	7	74	26	Custer et al. 1988
7NC-D-140	Procurement	133	21	75	25	Catts, Hodny, and Custer 1989
7NC-E-9	Micro-band Base Camp	4,090	14	81	18	Custer et al. 1990
7NC-E-46	Staging/ Processing	10,512	20	22	69	Custer and Bachman 1984
7NC-E-6A Area 2A	Macro-band Base Camp	5,515	9	60	34	Custer 1982
7NC-E-6A Area 2B	Macro-band Base Camp	6,206	9	71	23	Custer 1982
7NC-D-5	Quarry Reduction Base Camp	94	0	60	32	Custer, Ward, and Watson 1986
7NC-D-19	Quarry Reduction Base Camp	653	0	74	26	Custer, Ward, and Watson 1986
7NC-D-55A	Cobble Reduction Base Camp	132	45	30	69	Custer et al. 1981
7NC-A-2	Base Camp	845	2	18	67	Custer and De Santis 1986
7NC-A-17	Staging/ Processing	279	9	23	71	Custer and Hodny 1989
7NC-F-61A	Quarry Reduction Base Camp	1,922	1	99	1	Watson and Riley 1994

Although all sites identified during this project had lithic assemblages with relatively low percentages of cortex, three sites (7NC-D-131 A and C and 7NC-D-190) with a slightly higher cortex percentage than Gabor Area B were ranked into a grouping of sites associated with base camps, staging/processing, and procurement sites (Table 7). A very small percentage of Gabor Area B lithic artifacts had cortex, similar to a nearby procurement site (Dairy Queen Site - 7NC-D-129).

The preferred lithic material used for tool manufacture at the Gabor Site complex (7NC-D-131A, B, and C) and the Birchwood Site (7NC-D-190) was quartz and quartzite. The lithic assemblages from the Gabor Site Areas A and C both contained high percentages of quartz and quartzite, but showed a significant difference when compared to each other, and to other sites in the area (Table 7). The Gabor Site Area B was ranked with other base camps and staging/processing sites. The Birchwood Site showed a similar preference for quartz and quartzite material as did Area B of the Gabor Site. Cryptocrystalline usage at the Gabor Site

TABLE 7

Summary of Lithic Resource Use Patterns

Cortex		Cryptocrystalline		Quartz/Quartzite	
7NC-D-5	Quarry Reduction Base Camp-0	**7NC-D-131C**	**? -3**	7NC-F-61A	Quarry Reduction Base Camp-1
7NC-D-19	Quarry Reduction Base Camp-0	**7NC-D-131A**	**? -3**	7NC-D-125A	Staging/ Processing-2
7NC-F-61A	Quarry Reduction Base Camp-1	**7NC-D-190**	**Porcurement(?)-17**	7NC-D-125B	Staging/ Processing-8
7NC-D-125A	Staging/ Processing-1	7NC-A-2	Base Camp-18	7NC-E-9	Micro-band Base Camp-18
7NC-D-125B	Staging/ Processing-2	7NC-E-46	Staging/ Processing-22	7NC-E-6A(2A)	Macro-band Base Camp-23
7NC-A-2	Base Camp-2	7NC-A-17	Staging/ Processing-23	7NC-D-140	Procurement-25
7NC-D-131B	**Base Camp-6**	7NC-D-55A	Cobble Reduction Base Camp-30	7NC-D-19	Quarry Reduction Base Camp-26
7NC-D-129	Procurement-7	**7NC-D-131B**	**Base Camp-32**	7NC-D-129	Procurement-26
7NC-E-6A(2A)	Macro-band Base Camp-9	7NC-D-125C	Staging/ Processing-54	7NC-D-5	Quarry Reduction Base Camp-32
7NC-E-6A(2B)	Macro-band Base Camp-9	7NC-D-5	Quarry Reduction Base Camp-60	7NC-E-6A(2B)	Macro-band Base Camp-34
7NC-A-17	Staging/ Processing-9	7NC-D-6A(2A)	Macro-band Base Camp-60	7NC-D-125C	Staging/ Processing-45
7NC-D-190	**Procurement(?)-10**	7NC-D-6A(2B)	Macro-band Base Camp-71	7NC-A-2	Base Camp-67
7NC-D-131A	**? -11**	7NC-D-19	Quarry Reduction Base Camp-74	**7NC-D-131B**	**Base Camp-67**
7NC-D-125C	Staging/ Processing-13	7NC-D-129	Procurement-74	7NC-D-55A	Cobble Reduction Base Camp-69
7NC-E-9	Micro-band Base Camp-14	7NC-D-140	Procurement-75	7NC-E-46	Staging/ Processing-69
7NC-D-131C	**? -15**	7NC-E-9	Micro-band Base Camp-81	7NC-A-17	Staging/ Processing-71
7NC-E-46	Staging/ Processing-20	7NC-D-125B	Staging/ Processing-92	**7NC-D-190**	**Procurement(?)-79**
7NC-D-140	Procurement-21	7NC-D-125A	Staging/ Processing-98	**7NC-D-131C**	**? -93**
7NC-D-55A	Cobble Reduction Base Camp-45	7NC-F-61A	Quarry Reduction Base Camp-99	**7NC-D-131A**	**? -97**

Note: Sites are listed in order from lowest to highest by percentage frequency; sites with no significant differences in percentages are joined by brackets. This table was prepared by using data from previous site comparisons (Custer and Hodny 1989; Catts, Hodny, and Custer 1989), and the Paradise Lane Site (Riley, Custer, Hoseth, and Coleman 1994), with the addition of the 3 Gabor Sites and Birchwood Site.

Area B was higher than at Gabor Areas A and C and the Birchwood Site. Over 30 percent of the lithic assemblage of the Gabor Site Area B was cryptocrystalline materials, mainly derived from the Delaware Chalcedony Complex to the west of the study area. Lithic assemblages from the nearby Dairy Queen Site (7NC-D-129) and the Paradise Lane Site Areas A and B (7NC-D-125) contained low cortex and high cryptocrystalline percentages. The lithic assemblage at Area C of the Paradise Lane Site showed almost equal use of cryptocrystalline and quartz/quartzite materials. Convenience, rather than preference, may have been the biggest factor in the choice of lithic material used by groups inhabiting the Gabor and Birchwood sites. The sites were very near the White Clay Creek, which does not drain extensive areas of cryptocrystalline outcrops. Rather, the White Clay Creek drains an extensive section of the Piedmont Uplands where quartz and quartzite are commonly available.

FIGURE 43

Identified Sites Within the 1993 Proposed Route 273 Realignment Survey

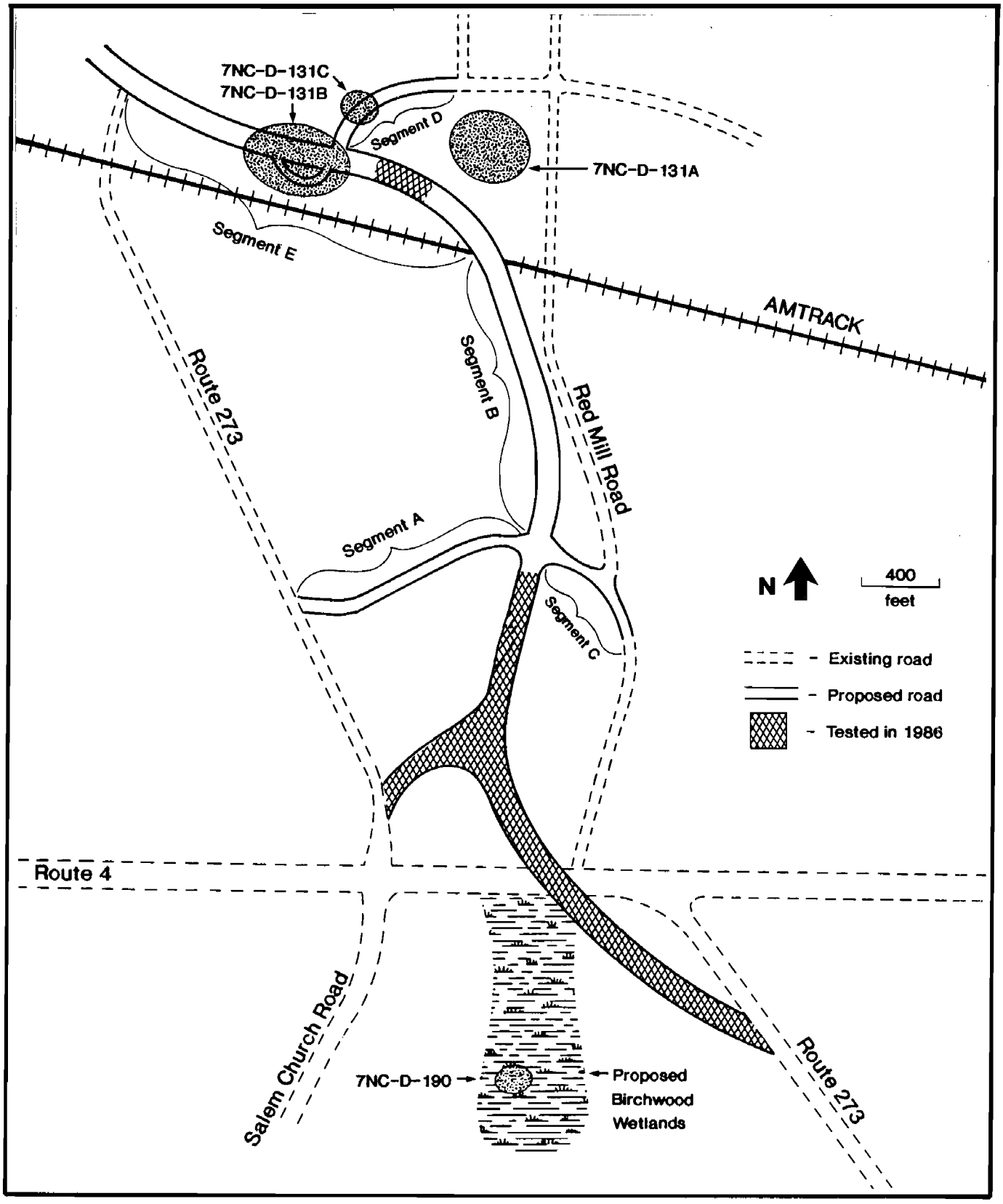


TABLE 8

Summary of Areas Subject to Phase I and II Study, by Segment

Project Area	Phase I Segment	Site	Phase I Testing	Phase II Testing
Ogletown Interchange	A	---	completed; no further work	
	B	---	completed; no further work	
	C	---	completed; no further work	
	D	7NC-D-131C	completed	completed; no further work
	E	7NC-D-131A	completed; no further work	
		7NC-D-131B	completed	completed; further work recommended
Route 141 Wetland	---	No sites located	completed; no further work	
Kemeether Wetland	---	No sites located	completed; no further work	
Birchwood Wetland	---	7NC-D-190	completed	partial; further work is recommended if impacted by future construction.

Cultural Resource Management Recommendations

Phase I and II archaeological investigation of the new alignments within the Ogletown Interchange and three proposed wetland replacement areas identified four prehistoric sites (Figure 43). No significant historical cultural resources were located within the project areas. Table 8 summarizes the results and recommendations for the Phase I and II investigations.

A prehistoric site, Birchwood (7NC-D-190), was identified within the proposed Birchwood Wetland Replacement Area. This area was removed from consideration as a wetland replacement area by DelDOT before completion of the archaeological survey. Additional archaeological testing to determine site limits and integrity of the Birchwood Site would be necessary if this area is impacted by future construction.

Three prehistoric sites were identified within the Ogletown Interchange project area. The Gabor Site complex consists of three areas. Area A (7NC-D-131A) was defined by a large surface lithic scatter with site limits outside the proposed 1993 right-of-way. Area C (7NC-D-131C) was a 20 x 25 m area of artifacts concentrated within a plow zone context. Phase II testing of Area C determined that this site is not eligible for inclusion on the National Register and no further work is recommended. Phase II testing of the Gabor Site Area B (7NC-D-131B) determined that this site is likely to yield significant archaeological information about the past and is eligible for inclusion to the National Register of Historic Places under criteria "D". If preservation of the Gabor Site Area B is not possible, Phase III data recovery excavations are recommended on those areas affected by construction.